

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application.

**COMPLETE LISTING OF THE CLAIMS:**

Claims 1-8 : (Canceled)

Claim 9 : (New) A system for electro-optically determining motion parameters of a moving target, comprising:

a) a stationary starting platform for supporting the target prior to target movement;

b) an assembly including a plurality of light emitting diodes pulsed by electrical transmit signals and each operative for directing outgoing light to the target for reflection therefrom, and a plurality of photodiodes each having a field of view and operative for detecting incoming light reflected from the target and for generating electrical receive pulses, the diodes and photodiodes being arranged in groups, each group comprising one of the diodes and two of the photodiodes, the assembly defining a reference plane located in and extending along the field of view, the platform being spaced at a known, predetermined spacing from the reference plane;

c) means for determining a difference in arrival times of the transmit and receive pulses, and for determining a distance to the target at the reference plane as a function of the difference in the arrival times;

d) means for ascertaining a direction of the target relative to the reference plane as a function of said spacing and said distance;

e) a reflector on the target for reflecting light to the photodiodes; and  
f) wherein a first photodiode in each group is operative for detecting reflections from the target, and a second photodiode in each group is operative for detecting reflections from the reflector, and wherein the transmit signals for the light emitting diodes in the groups are spaced timewise apart.

Claim 10 : (New) The system of claim 9, wherein the ascertaining means includes ascertaining a velocity of the target by consideration of the time taken for a given dimension of the target to pass through the field of view.

Claim 11 : (New) The system of claim 9, wherein the target is a golf ball, and wherein the platform is a tee.

Claim 12 : (New) The system of claim 9, wherein the assembly is mounted in a housing.

Claim 13 : (New) The system of claim 9, wherein the reflector is a piece of retro-reflective tape.

Claim 14 : (New) The system of claim 9, wherein there are three groups.